

# Mumbai University

## Question Paper



NETWORK SECURITY

B.Sc.IT: Semester – V  
April – 2014

**Time:** 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain IPSec Key Management. (5)
- (B) Use the Vigenere Cipher with keyword "WEALTH" to Cipher the message, "Life is full of Surprises" (5)
- (C) What is Message Digest? Explain its importance. (5)
- (D) Explain different types of Intrusion Detection System. (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is a Stream Cipher? How does it differ from Permutation Cipher? Describe with an example. (5)
- (B) Diagrammatically describe the Data Encryption Standard Algorithm. (5)
- (C) What is Public Key Cryptography? What are its advantages and disadvantages? (5)
- (D) Write down the steps involved in RSA Algorithm. Describe it with an example. (5)
- (E) What are Symmetric and Asymmetric Cryptographic Algorithm? Compare Them. (5)
- (F) What do you mean by differential Cryptanalysis? Describe with an example. (5)

**Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Define Hash Function. Discuss Security of Hash Functions. (5)
- (B) Explain in detail Birthday Attack. (5)
- (C) Explain in detail Diffie-Hellman Key Exchange Algorithm. (5)
- (D) Discuss Blom's Key Predistribution Scheme. (5)
- (E) What is Digital Signature? Explain the concept in detail. (5)
- (F) Write a short note on ElGamal Signature Scheme. (5)

**Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Describe the OSI Security Architecture with a neat diagram. (5)
- (B) Explain the Model of Network Security. (5)
- (C) Explain the X.800 Security Services Standard. (5)
- (D) Explain the Impact of Theft of Data. (5)
- (E) What Functions need to be focused in Security Mechanisms? (5)
- (F) Write a short note on Denial of Service. (5)

**Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is Public Key Infrastructure? What are the required Functionalities for that? (5)
- (B) Describe S/MIME with a neat diagram. (5)
- (C) Explain the working of Pretty Good Privacy. (5)
- (D) What are the various Web Security Protocols? (5)
- (E) Explain PKCS System. (5)
- (F) What four requirements were defined for Kerberos? (5)

**[TURN OVER]**

**Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain IPSec Key Management. (5)
- (B) What is the concept of IKE? What are its feature? Explain IKE Header Format? (5)
- (C) Compare Transport Mode with Tunnel Mode of IP. (5)
- (D) What is the role of IPSec in routing application? Explain. (5)
- (E) What is Handshake Protocol and How it differs from Record Protocol? (5)
- (F) Explain the term: Security Association Bundle. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Who are intruders? Describe Their Characteristics. (5)
  - (B) Describe the Structure of Virus. (5)
  - (C) What is Firewall? Why do we need them? (5)
  - (D) What are Advantages and Disadvantages of Application Level Gateway? How is it different from Circuit Level Gateway and Packet Filter Firewall? (5)
  - (E) How Viruses are different from Worms and Trojan Horses? (5)
  - (F) What is DOS? How DOS is different from DDOS? (5)
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# Mumbai University

## Question Paper



ASP.NET WITH C#

B.Sc.IT: Semester – V  
April – 2014



**Time:** 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

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(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What are the differences between Structures and Classes? (5)
- (B) Explain Variable Sized Arrays with suitable example. (5)
- (C) Write a short notes on .NET Framework. (5)
- (D) Is multiple Main() allowed in C#? Justify the Statement with a program. (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is the differences between for loop and foreach loop? (5)
- (B) Explain References Parameters and Output Parameters with a program. (5)
- (C) When is Explicit Interface necessary? (5)
- (D) Why is there a necessity of Enumerator Data Type in C#? (5)
- (E) Explain Method Overriding with a program. (5)
- (F) What are the different types of constructors in C#? (5)

**Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is the difference between Arrays and ArrayLists? Explain with a program. (5)
- (B) Can events be implemented without Delegates? Justify the statement. (5)
- (C) Is it a must to Unbox a Boxed Variable? Explain. (5)
- (D) Explain Textbox Control and Label Control. (5)
- (E) List and explain the properties of ToolStripMenuItem. (5)
- (F) What is the difference between SDI and MDI? (5)

**Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain ASP.NET Life Cycle. (5)
- (B) What is the significance of View State in ASP.NET? (5)
- (C) Explain External and Embedded CSS with suitable examples. (5)
- (D) What is the difference between Themes and Skins in ASP.NET? (5)
- (E) What is global.asax file? (5)
- (F) What is the difference between Application State and Session State in ASP.NET? (5)

**Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the role of Cookies in ASP.NET. (5)
- (B) What is the need of Query String in ASP.NET? (5)
- (C) How do we create a User Control in ASP.NET? (5)
- (D) Explain Menu Control in ASP.NET. (5)
- (E) When do we have to use TreeView Control in ASP.NET? (5)
- (F) Explain the role of Master Pages in ASP.NET. (5)

**[TURN OVER]**

**Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain ADO.NET Object Model with help of suitable diagram. (5)
- (B) Explain the following Data Bound Controls: (5)
- (a) *Single Item Control*
- (b) *Paging Control*
- (C) What are the steps to be followed to access a database through ADO.NET? (5)
- (D) What is the different between DataReader and DataAdapter? (5)
- (E) What is LINQ? What are the advantages of LINQ? (5)
- (F) Explain the syntax of a query in LINQ. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What are the advantages of AJAX Applications? (5)
- (B) Explain Update Control and UpdateProgress Control. (5)
- (C) What is Web Service? Explain the basic steps to create a Web Service using ASP.NET with C#. (5)
- (D) What is the importance of JQuery in the Development of web Applications? (5)
- (E) List the five Applications where AJAX is incorporated. (5)
- (F) What are the Selectors present in JQuery? (5)
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# Mumbai University

## Question Paper



SOFTWARE TESTING

B.Sc.IT: Semester – V  
April – 2014

Time: 3 Hours

Total Marks: 100

N.B.: (1) All Question are Compulsory.

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(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Define Quality. Explain the TQM Cost Perspective. (5)
- (B) Explain the issues in Object Oriented Testing. (5)
- (C) Compare Black Box, White Box and Grey Box Testing. (5)
- (D) State and explain the Levels of Testing. (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

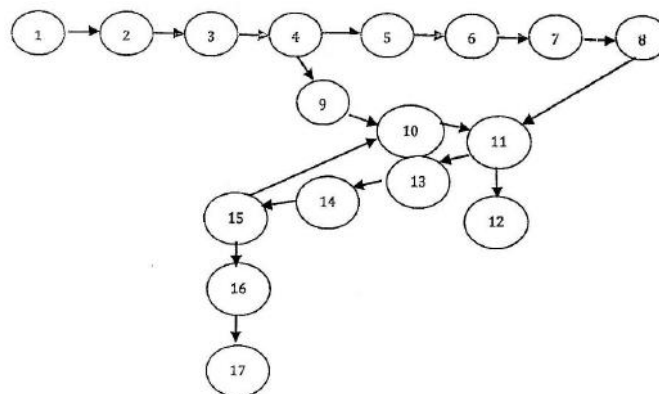
- (A) Explain the VV Model of Testing. (5)
- (B) State the methods or techniques of Verification. (5)
- (C) Discuss the various Test Team approaches. (5)
- (D) Explain the PDCA Cycle for Quality improvement. (5)
- (E) Explain the principles of Software Testing. (5)
- (F) Differentiate between Software Quality Assurance and Software Quality Control. (5)

**Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is Functional Testing? Explain its advantages and disadvantages. (5)
- (B) With the help of an illustrative example, explain how Decision table can be used for testing. (5)
- (C) What is Equivalence Partitioning? Explain the types of Equivalence Class Testing. (5)
- (D) Write a note on State Transition Based Testing. (5)
- (E) Explain Boundary Value Analysis Testing Technique with suitable example. How does it differ from Equivalence Partitioning? (5)
- (F) A result program accepts percentage of a student from the user. If the student secures marks between 40% up to 100%, then displays a message "PASS" else displays "FAIL". (5)

**Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the following generating adequate test for each: (5)
1. Statement Coverage
  2. Conditional Coverage
- (B) Write a short note on Data Flow Testing. (5)
- (C) What is Cyclomatic Complexity? Calculate Cyclomatic Complexity for the following flow graph: (5)



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- (D) Explain in brief different Testing Strategies using du-paths for generating test cases. (5)
- (E) What are the advantages and disadvantages of Structural Testing? (5)
- (F) Construct a Program Graph and DD Graph with mapping table for the following: (5)
1. Program 'Subtraction of two numbers'
  2. Input (n1, n2)
  3. Output n1
  4. Output n2
  5. If  $n1 > n2$  then
  6.  $res = n1 - n2$
  7. Else
  8.  $res = n2 - n1$
  9. End If
  10. Output (res)
  11. Output "End of Program"

**Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Describe the Incremental approaches of Integration Testing. (5)
- (B) List and explain in brief any 5 types of System Testing. (5)
- (C) Distinguish between the following: (5)
- (i) *Stubs and Drivers*
  - (ii) *Retesting and Regression Testing.*
- (D) Enumerate the objective and benefits of Unit Testing. (5)
- (E) Explain Acceptance Testing in detail. (5)
- (F) What is Retrospection? Explain Retrospection with respect to Unit Testing. (5)

**Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the essential components of object Oriented Testing. (5)
- (B) What is Class Testing? Discuss the issues related to Class Testing. (5)
- (C) Explain the various levels of Object Oriented Testing. (5)
- (D) Write a note on Object Oriented Integration Testing. (5)
- (E) How is Object Oriented Software Testing different from Conventional Testing? (5)
- (F) Discuss the issues related to Inheritance and Encapsulation in Object Oriented Testing. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Discuss different forms of Data analysis – Qualitative and Quantitative Data Analysis. (5)
- (B) What is Test Metrics? Discuss any 5 types of Test Metrics. (5)
- (C) State the important guidelines for developing a Test Plan. (5)
- (D) What is the importance of a Test Report? Describe its types. (5)
- (E) What are Test Cases? Explain its basic components with the help of example. (5)
- (F) List the steps for Test Process Improvement. (5)
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## Question Paper



ADVANCED JAVA

B.Sc.IT: Semester – V

April – 2014

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(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain the concept of Event Listener and also explain its types. (5)  
(B) Explain the term “POP”. (5)  
(C) Explain the meaning and importance of “Naming Service”. (5)  
(D) Explain the concept of “Result Interface”. (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain JFC’s functionality. (5)  
(B) Explain the usage of Scrollbar Control in Swing. (5)  
(C) Explain the component “JColorChooser” with an illustration. (5)  
(D) Write a Swing Program that creates a GUI for the order form. The order form should contain the following fields: (5)

Text Boxes to store Customer Name, Quantity of the Product and Price of the List).

Buttons, one to Submit Data and another to Clear the Fields.

**NOTE:** All input fields should be supported by appropriated labels.**Event:** GUI Design should handle windowClosing () Event.

- (E) Explain the “ProgressBar” component’s usage with illustration. (5)  
(F) How to create Directory like Structure in Swing? Explain with illustration. (5)

**Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Why Servlet are preferred over CGI? (5)  
(B) Write a Servlet that prints the Reverse of the given number. (5)  
(C) Explain the Life Cycle of Servlet. (5)  
(D) Write a Servlet that prints Sum of Cube of the given number. (5)  
(E) Explain the HTTPServletRequest Interface. (5)  
(F) Explain the importance of Request Dispatcher of Servlet in Inter-Servlet Communication. (5)

**Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain <jsp:include> and <jsp:forward> Action Tags. (5)  
(B) What is Directive? Explain the Page Directives. (5)  
(C) Explain the concept of “Character Quoting Conventions” in JSP. (5)  
(D) Explain the concept of Rowset along with its classifications” in JSP. (5)  
(E) Explain JDBC Architecture in detail. (5)  
(F) Write a short notes on “ResultSetMetaData”. (5)

**[TURN OVER]**

**Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is MVC Pattern? How do JSF Claim that it follows MVC? Explain your arguments. (5)
- (B) Enlist the Lifecycle Phases of JSF and explain any four phases in detail. (5)
- (C) Classify the Enterprise Bean. Explain its types. (5)
- (D) Write a Model and Navigation Rules to find the Simple Interest of a given Principle, Interest and terms (in JSF). (5)
- (E) Explain the advantages of EJB. (5)
- (F) Write a Session Bean that contains the Business Logic for Celsius-Fahrenheit Converter. Assume the value, from and to are entered by the user. The Business Logic should convert the user-entered Fahrenheit Value into Celsius or the user-entered Celsius into Fahrenheit. (5)

**Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What are struts? Why it is required? (5)
- (B) Enlist the Core Components of Struts and Explain about the Interceptors. (5)
- (C) What is OGNL? Explain the Execution Flow of the same. (5)
- (D) Explain the importance of Mapping and show the creation of Mapping File in Hibernate Framework. (5)
- (E) Explain the Architecture of Hibernate Framework in detail. (5)
- (F) Explain the process Flow of Hibernate Framework. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Write a short note on Resource Injection. (5)
  - (B) Explain the components of Web Services. (5)
  - (C) Enlist and Explain the components of Java Mail API that helps in reading the contents of the Mail from Inbox Folder. (5)
  - (D) What are Web Services? State the importance of the same. (5)
  - (E) How to access the Web Services that we created already? Explain the steps in creating the client. (5)
  - (F) Explain the need of Directory Services in detail. (5)
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# Mumbai University

## Question Paper



LINUX

ADMINISTRATION

B.Sc.IT: Semester – V  
April – 2014

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(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What is GNU? Explain in detail. (5)
- (B) Explain the common rpm installation options. (5)
- (C) What are the advantages of Shadow Passwords over Traditional Password System? (5)
- (D) What is Mail Queue? How is it managed? (5)

**Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Enumerate the features of Linux Operating System. (5)
- (B) What are rc scripts? Explain in detail. (5)
- (C) Explain the duty of the Linux System Administrator in installing and configuring Servers. (5)
- (D) What are the different runlevels in Linux? Explain. How can the runlevel be changed? (5)
- (E) Explain the IBM's Journaling File System and SGI's Extended File System. (5)
- (F) What are Meta Devices? What is Logical Volume Manager? Explain. (5)

**Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the /etc/profile file. (5)
- (B) Explain the different directories in /etc/sysconfig directory. (5)
- (C) Explain the Network Configuration Tool available in Linux. (5)
- (D) What is Subnetting? Explain with example. (5)
- (E) Explain the different options of NFS Export. (5)
- (F) How are NFSv4 Client and Server configured? Explain. (5)

**Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the smb.conf file. (5)
- (B) How can Windows PC be connected to Samba Server? What are the advantages of using Samba over NFS? (5)
- (C) How are Reference Clocks configured? Explain. (5)
- (D) What is a Caching Proxy? What are the uses of a Caching Proxy Server? (5)
- (E) What are the different less secured Internet Services? Explain each in brief. (5)
- (F) What are the services that can be started using xinetd? Explain. (5)

**Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is Domain Name System? What are the different Top-Level Domains? Explain. (5)
- (B) Explain the Host and the dig programs. (5)
- (C) What is Sendmail? How is it configured? (5)
- (D) Explain the configuration Process of Postfix Mail Server. (5)
- (E) How is vsftpd configured? Explain the important configuration files of vsftpd. (5)
- (F) How is vsftpd run over SSL? What are the SSL-related configuration directives for vsftpd over SSL? Explain. (5)

**[TURN OVER]**

**Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What is Content Negotiation? Explain with example. (5)
- (B) What is PHP? How is it enabled in Apache Web Server? (5)
- (C) What are the two Principles on which certificates work? What information is contained in a digital certificate? (5)
- (D) What are the Virtual Server Configuration Directives in httpd.conf? How are Virtual Servers configured? (5)
- (E) How is feed file created? Explain. (5)
- (F) Write a short note on Mailing Lists. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) How are LDAP Services optimized? Explain. (5)
  - (B) Explain the userdel and usermod command with options and arguments. (5)
  - (C) Explain the Quota Command with options and arguments. (5)
  - (D) What are the salient features of User Private Groups Scheme? (5)
  - (E) What is Redhat Packet Manager? What are its components? Explain. (5)
  - (F) How can we use rpms with source tarballs? Explain. (5)
-